concerned. The mentality of the native was analysed, and because of the lack of sublimation of the sex instincts, such as occurred in the European, there was not the same growth in ambition, idealism, and general achievement. The trade union movement among natives and their numerous religious bodies were mentioned, and European philanthropic leading was mentioned as being desirable. Location and taxation problems were discussed, and the co-operation of all scientists desired in solving the many problems connected with the native.

Prof. W. A. Macfadyen spoke on "Observations and Proposals for the Stabilisation of Money Values" in his presidential address to Section F. Inflation and deflation of currency were two of the greatest evils resultant on the great war, and they affected everyone. The stabilisation of money values and the preservation of such stability were shown to be the most fundamental interests of commercial, industrial, and democratic policies. National bankruptcy was defined, and it was shown that international exchanges had failed to act as bridges for commerce. The dissipation of capital during the war led to inflation, and the necessity for constant readjustment between wages and prices led to constant strikes and labour unrest. Legitimate trade and industry were replaced by speculation. Economic bankruptcy of a nation meant reversion to an archaic type of civilisation and the sacrifice for a time of all the artistic and professional values of civilisation. Fluid permeation of gold was shown to be necessary. The function of a central reserve bank was also discussed, and the function of the League of Nations in instituting an international currency reserve bank was indicated. The speaker summarised his points thus: The international export and investment of capital had woven the world into one financial system. Such an international system implied either a universal unit of account or an international banking system. The control of such a general standard of value so as to preserve an invariable ratio between goods and money was the most important of public and private interests.

It is only possible to mention some of the many papers read before the various sections, but most of them will be printed in the journal of the Association.

In Section A an interesting paper on asphalt in relation to road construction was contributed by Mr. D. B. W. Alexander; Mr. R. J. Norris spoke on the purification of sewage by the activated sludge process, and Mr. H. Clark gave notes on the occurrence of even harmonics in electrical current and pressure waves.

In Section B Mr. C. W. Petchell spoke on alcohol fuels for internal combustion engines. Mr. C. Williams gave notes on the chemical control of cattle-dipping tanks, a matter of much importance in South Africa. Dr. B. de C. Marchand gave an account of methods for the mechanical analysis of soils containing heavy minerals, and Messrs. Kloot and Hyman gave a paper on the chemistry of condensed milk.

In Section C papers were given by Miss H. Forbes on the Natal species of Cassia and on the flora of Isipingo. Dr. P. A. van der Bijl gave accounts of some interesting and little-known South African fungi, and of the fungi found in the air of sugar mills. Mr. R. D. Aitken described the plant succession in a type of midland tree veld in Natal, and Mr. G. W. Gale discussed the aeration systems of certain Natal plants. Prof. D. Thoday discussed the genus Passerina and its distribution in South Africa, and Dr. Sim contributed notes on the Bryophyta of Southern Rhodesia. A most interesting paper was contributed by Dr. E. Warren on the interspecific hybrid and back-cross of the foxglove, the paper being followed by a useful discussion. Two papers of special interest to agriculturists were contributed by Mr. E. Parish on agricultural experiment, its design and interpretation, and by Mr. A. O. D. Mogg on a method of veld estimation in relation to lamziekte. There was also a botanical excursion to Isipingo.

In Section D there was a discussion on South African Trematodes, in which papers by Dr. F. G. Cawston on *Bilharzia cercariae*, by Mr. F. W. FitzSimons on birds as possible carriers of snails, and so as distributors of Bilharzia, and by Dr. Annie Porter on experimental researches on various species of Schistosoma and Fasciola were first considered. Mr. J. Sandground gave a detailed account of the life-history of species of Heterodera in South Africa, and Mr. R. H. T. P. Harris described the beetle, *Ortalia pallens*. Mr. E. C. Chubb contributed a paper on the natural history and geology of Durban. Much interest was aroused by the account given by Dr. H. B. Fantham and Miss Esther Taylor of the Protozoa found by them in some South African soils. Dr. Fantham also described his further observations on parasitic Protozoa in animals in South Africa. Dr. Lindsay Johnson gave an interesting account of various methods for screening light observed in the eyes of vertebrates, beautiful lantern slides being shown. There was also a zoological excursion for observations on the animal life of Durban Bay.

In Section E Mr. D. A. Hunter discussed Bantu industries, Mr. W. H. Tooke dealt with natives and agriculture, and Mr. H. S. Keigwin gave an account of an educational experiment. Mr. S. S. Dornan spoke of the heavenly bodies in South African mythology; Mr. W. Wanger dealt with two Ntu problems, and Mr. A. J. Bryant gave an account of some native marriage rites. Prof. W. A. Norton read papers on the regiments of the house of Moshish, Sesuto praises of the chiefs and the Bantu idiomatist, and Mr. D. D. T. Jabavu contributed a paper on Bantu literature.

In Section F Mrs. Mabel Palmer discussed Irving Fisher's proposals for stabilisation of the value of money, and Mr. G. Burgess dealt with the taxation of land values. Mr. C. Graham Botha gave papers on archival problems in South Africa and on the preservation of our national monuments. Dr. J. E. Holloway spoke on decentralisation in university education and research. An interesting paper on the function of a school of art in the life of an urban community was given by Mr. O. J. P. Oxley, who illustrated his remarks by an exhibit.

The next annual meeting of the Association will be held in July, 1922, at Lourenço Marques, under the presidency of Dr. A. W. Rogers. H. B. F.

University and Educational Intelligence.

LONDON.—Dr. R. H. Aders Plimmer has been appointed as from January 1, 1922, to the University chair of chemistry, tenable at St. Thomas's Hospital Medical School. Since 1919 Dr. Plimmer has been head of the Biochemical Department of the Rowett Research Institute of Animal Nutrition at the University of Aberdeen and North of Scotland College of Agriculture, and research lecturer in applied biochemistry in the University of Aberdeen.

Mr. H. H. Dodwell has been appointed as from March 1, 1922, to the University chair of the history and culture of British Dominions in Asia, with special reference to India, tenable at the School of Oriental Studies.

Dr. Lewis Simons has been appointed as from March 1, 1922, to the University readership in

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physics, tenable at Birkbeck College. Since 1917 Dr. Simons has been lecturer in physics at the South African College, now the University of Cape Town.

The following doctorates have been conferred: *D.D.:* Rev. W. R. Matthews, an internal student of King's College, Theological Department, for a thesis entitled "Studies in Christian Philosophy." *D.Sc. (Chemistry):* Mr. K. G. Naik, an internal student of the Imperial College, Royal College of Science, for a thesis entitled "The Interaction of Sulphur Monochloride with Substances containing the Reactive Methylene Group or Substituted Methylene Group." *D.Sc. (Economics):* Mr. Sih-Gung Cheng, an internal student of the London School of Economics, for a thesis entitled "Modern China: A Political Study."

MANCHESTER.—The following appointments have been made: Mr. C. B. Dewhurst, dean of the faculty of science; Dr. J. P. Buckley, lecturer in regional surgery; Mr. J. M. W. Morison, lecturer in applied anatomy; Dr. T. H. Oliver, lecturer in clinical medicine; and Mr. H. S. Leigh and Mrs. Leonore Pearson to honorary research fellowships.

THE honorary degree of Doctor of Science has been conferred by the University of Calcutta on Sir W. J. Pope, professor of chemistry, Cambridge University, and on Prof. C. V. Raman, professor of physics, University of Calcutta.

THE general council of the Trades Union Congress and the executive of the Labour Party passed the following resolution on December 15:—"That this joint meeting views with profound disappointment the apparent intention of the Government further to reduce expenditure on education, and in particular condemns the decision of the Treasury to reduce the annual universities grant from 1,500,000*l.* to 1,200,000*l.*, which can do virtually nothing to relieve the national finances, but which will be a serious blow to higher education."

THE twenty-second annual meeting of the Science Masters' Association will be held in the chemical department of the Imperial College of Science and Technology (Royal College of Science) on January 3–4 next. The president of the association, the Master of Balliol, will deliver his address on January 3, taking as his subject "Science and History." The topics for discussion on the first day of the meeting are The Teaching of Mechanics and The Teaching of Geography in Relation to Science, while Physical Chemistry in Schools and Post-Certificate Science for Non-Specialists will occupy the second day. Exhibitions of apparatus and books by members, instrument-makers, and publishers will be open during the meeting.

THE annual meeting of the Mathematical Association will be held at the London Day Training College, Southampton Row, London, W.C.1., on January 2 and 3 next. The following are among the papers to be submitted during the meeting:—Mathematics in Artillery, by Sir George Greenhill; The Structure of the Atom, by Prof. J. W. Nicholson; Vectors, by Prof. C. Godfrey; The Dalton Plan and the Teaching of Mathematics, by Miss F. A. Yeldham; and The late Srinivasa Ramanujan, by Prof. G. H. Hardy. There will also be discussions on the simultaneous teaching of pure and applied mathematics and on methods of keeping mathematics teachers in touch with modern developments of the subject. Sir Thomas L. Heath has been nominated president of the association for the years 1922 and 1923 in succession to the Rev. Canon J. M. Wilson.

Calendar of Scientific Pioneers.

December 22, 1590. Ambroise Paré died.—Surgeon to four Kings of France, Paré served through many campaigns, doing much to improve the treatment of wounds, especially by the substitution of ligature of the arteries for cauterisation with a red-hot iron after amputation. He is regarded as the father of modern surgery.

December 22, 1722. Pierre Varignon died.—In 1687, the year Newton's "Principia" appeared, Varignon published his work on mechanics based on the composition of forces. Like l'Hospital, he was a powerful advocate in France of the use of the differential calculus.

December 22, 1828. William Hyde Wollaston died.—Abandoning medicine for scientific research, Wollaston made investigations over a wide field and contributed much to chemistry and optics. He first noticed the dark lines in the spectrum, invented the camera lucida and a reflecting goniometer, showed the identity of galvanism and frictional electricity, and discovered palladium and rhodium. By making platinum malleable he gained a fortune of 30,000*l.*

December 22, 1887. Ferdinand Vandeveer Hayden died.—A great geological explorer, Hayden was prominently connected with the survey of the Western States of America and wrote valuable works on natural history and economic science. The idea of the National Park on the Yellowstone River was his.

December 23, 1901. Sir Joseph Henry Gilbert died.—The fellow-student of Lawes at University College, London, Gilbert worked under Liebig at Giessen, and in 1843 began his lifelong collaboration with Lawes in agricultural chemistry. For some years he held the chair of rural economy at Oxford.

December 23, 1907. Pierre Jules César Janssen died.—Janssen was the pioneer of spectroscopic astronomy in France. Well known for his scientific expeditions, in 1868 in India independently of Lockyer he discovered the method of observing the solar prominences in daylight. In 1876 he became director of the observatory at Meudon, and he also established a meteorological observatory on the summit of Mont Blanc.

December 24, 1872. William John Macquorn Rankine died.—Distinguished alike as an engineer and physicist, Rankine from 1855 held the chair of engineering at Glasgow and published standard text-books on various branches of engineering. His "Steam Engine" contained the first systematic treatise on thermodynamics, and he made important researches in molecular physics.

December 26, 1886. Theodor Ritter von Oppolzer died.—Professor of astronomy in the University of Vienna, Oppolzer paid special attention to theoretical astronomy, did valuable work on the European degree measurement, and published a "Canon der Finsternisse" containing the elements of eclipses of the sun and the moon from 1207 B.C to A.D. 2162.

December 28, 1850. Heinrich Christian Schumacher died.—The founder a century ago of the *Astronomische Nachrichten,* thirty-one volumes of which he edited, Schumacher held positions in Copenhagen and Mannheim, and in 1821 became director of the Altona Observatory.

December 28, 1899. Karl Friedrich Rammelsberg died.—Born in 1813, two years after Bunsen, Rammelsberg passed his life teaching and experimenting in Berlin, adding immensely to the knowledge of inorganic chemistry, mineralogy, and crystallography.

E. C. S.

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